

EXETER-SQUAMSCOTT RIVER SUBWATERSHED



Photo by Malcolm Wesselink

PISCATAQUA REGION ENVIRONMENTAL PLANNING ASSESSMENT 2015

Exeter-Squamscott River Subwatershed, including:

Brentwood, Chester, Danville, East Kingston, Exeter, Fremont,
Kensington, Kingston, Newfields, Sandown, Stratham



PREP

Piscataqua Region Estuaries Partnership

www.preestuaries.org

Exeter-Squamscott River Subwatershed

INTRODUCTION

The Exeter River rises from a group of spring-fed ponds in Chester, New Hampshire and flows 33 miles to downtown Exeter where its name changes to the Squamscott River and becomes a tidal river and primary tributary to the Great Bay estuary. The Exeter-Squamscott River watershed drains an area of approximately 128 square miles (81,726 acres) and includes portions of 12 towns in southeastern New Hampshire. The total population for watershed communities in 2010 was 68,245.

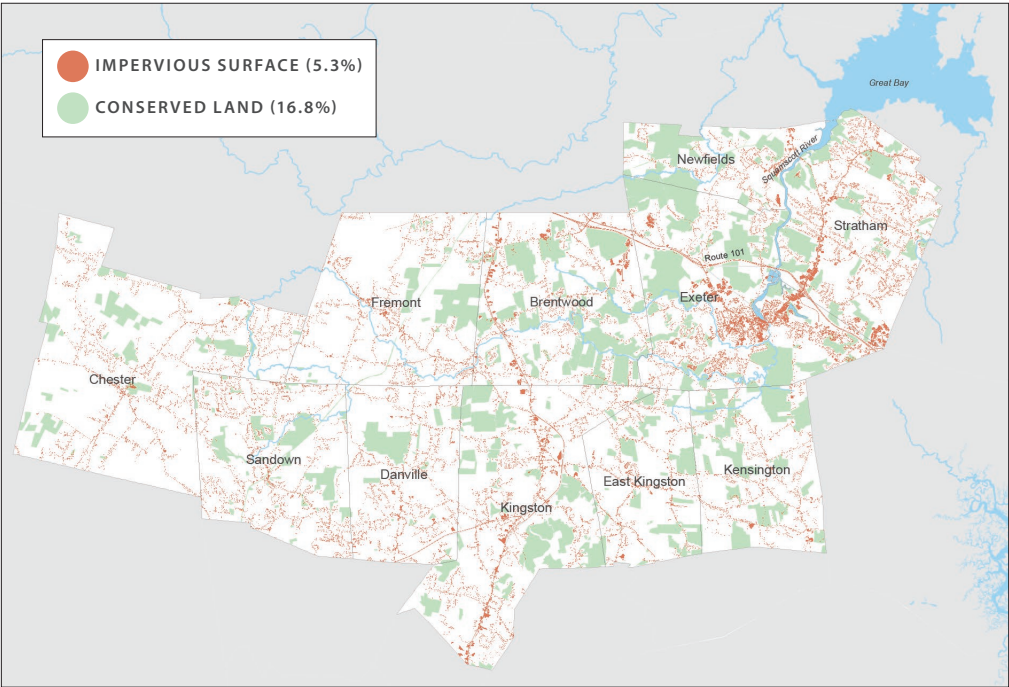
The Exeter-Squamscott River watershed includes some of the fastest growing communities in New Hampshire. Population growth and land development have created

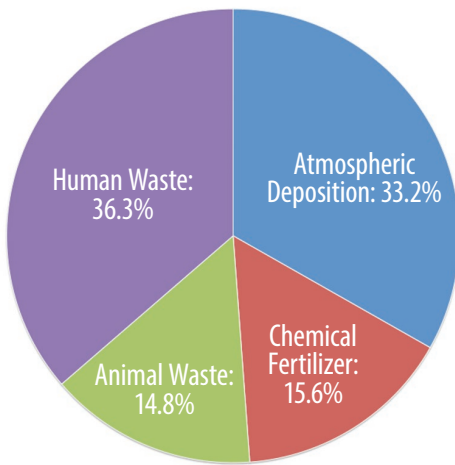
increasing amounts of impervious surfaces from roads, parking lots, and building roofs, fragmentation of forestland and wetlands, installation of septic systems, and increases in groundwater withdrawals for drinking wells (ESRLAC 2012).

Table of Contents

Threats	
Nitrogen and Impervious Cover . . .	3
Findings	
Report Cards	4-5
Actions	
By Town	6-7

Balance is key. PREP recommends no more than 10% impervious cover and no less than 20% conservation land in a watershed.





Data source: NHDES Great Bay Nitrogen Non-Point Source Study, 2014. Nitrogen measured in pounds per year.

Nitrogen Loading

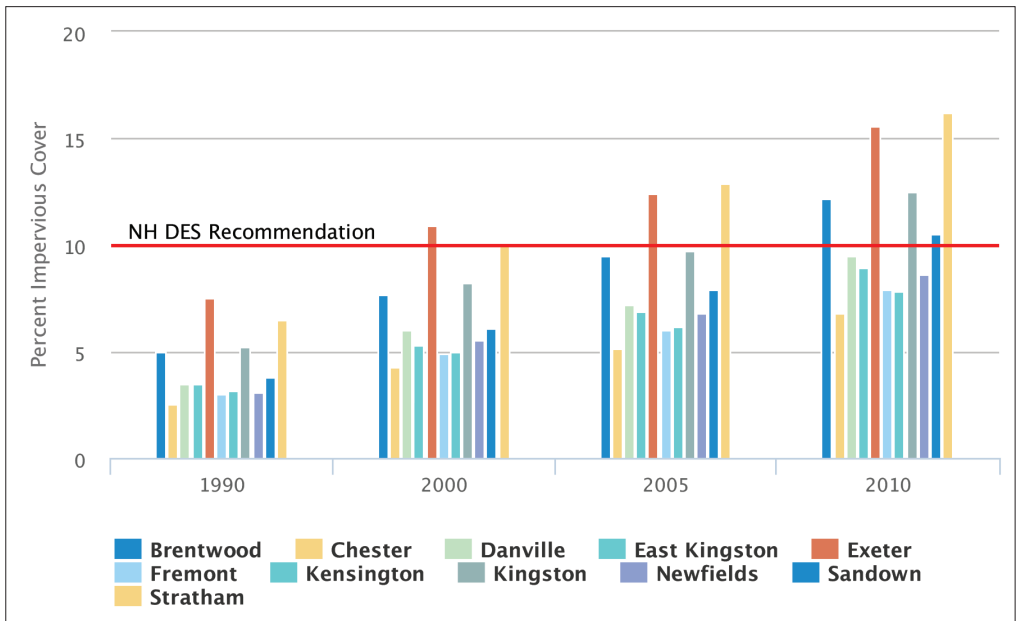
PRIMARY CONTRIBUTOR: HUMAN WASTE contributes 95,432.0 pounds of nitrogen per year to the Exeter-Squamscott River Watershed, and nearly 98 percent—or 93,034.3 pounds per year—comes from septic systems greater than 200 meters of a waterway within the watershed. The remaining 2.5 percent comes from septic systems within 200 meters of a waterway.

SECOND CONTRIBUTOR: ATMOSPHERIC DEPOSITION contributes 87,221.7 pounds of nitrogen per year to the Exeter-Squamscott River Watershed, and roughly 52 percent—or 45,716.6 pounds per year—is deposited on natural vegetation within the watershed. The remaining 48 percent is split between disconnected impervious areas, connected impervious areas, agriculture, lakes and rivers, residential lawns, estuarine waters, and golf courses, parks, and sports fields in descending order.

Impervious Cover

An overall trend shows an increase in impervious cover for each of the eleven towns from 1990 to 2010. This trend is consistent with the remaining subwatersheds in the Great Bay Watershed. As of 2010, Stratham (16.2%), Exeter (15.6%), Kingston (12.5%), Brentwood (12.2%) and Sandown (10.5%) all exceed the NHDES maximum 10% impervious cover.

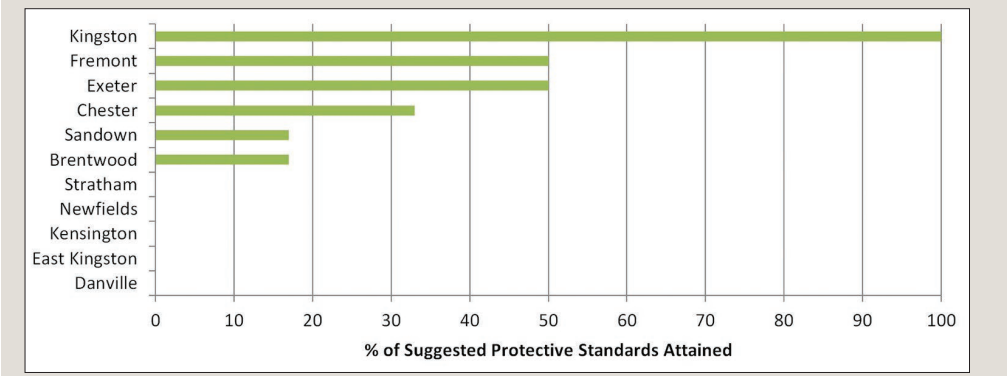
For more info please visit www.PREstuarines.org/PREPA



Report Cards

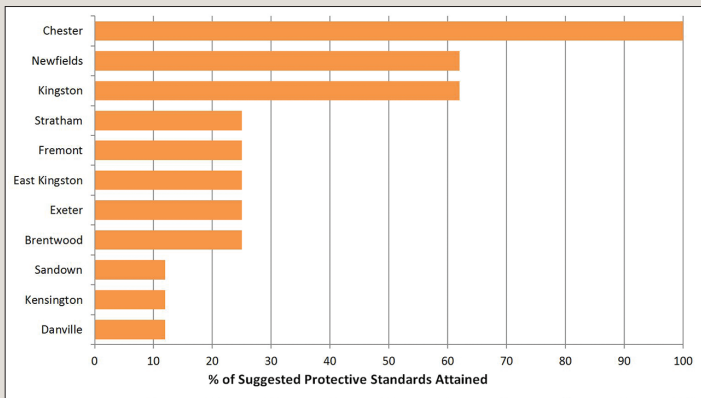
Freshwater Wetland Protection

1. Designated “prime” wetlands (NH) or “significant” wetlands (ME), and adopted local regulations to protect these wetlands?
2. Regulations that offer explicit protection of vernal pools?
3. No soil disturbance or No Vegetation Disturbance buffer requirement that is ≥ 100 feet?
4. Septic Setback requirement that is ≥ 100 feet?
5. Building Setback requirement that is ≥ 100 feet?
6. Fertilizer Application Setback requirement that is ≥ 100 feet?



Stormwater Management

1. Stormwater management regulations?
2. Less than or equal to 9% Impervious Cover?
3. Minimum area of soil disturbance that “triggers” application of the municipality’s stormwater management regulations less than or equal to 20,000 sq. ft.?
4. Cap of 10% effective impervious cover (EIC) for new development in residentially zoned lots of 1 acre or more?
5. Existing regulations require the use of Low Impact Development (LID) techniques to the maximum extent practicable for new/re-development?
6. Stormwater management regulations reflect the minimum design criteria for water quality volume/flow (WQV/WQF), groundwater recharge volume (GRV), and peak flow control defined in the NH Stormwater Management Volume 2?



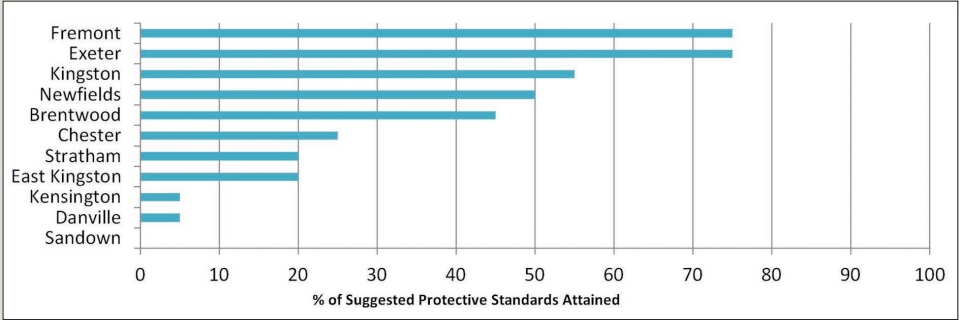
Shoreland Buffers and Setbacks

2nd – 4th Order Streams and Lakes/Ponds

- 1. No Vegetation Disturbance or Managed buffer requirement that is ≥ 100 feet?
- 2. Septic Setback requirement that is ≥ 100 feet?
- 3. Building Setback requirement that is ≥ 100 feet?
- 4. Fertilizer Application Setback requirement that is ≥ 100 feet?

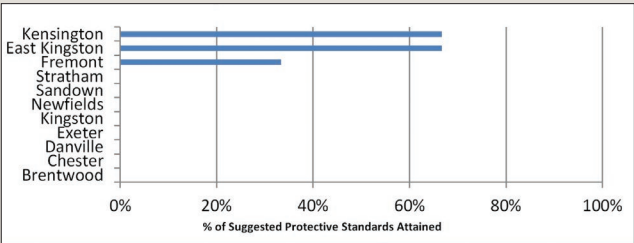
1st Order Streams

- 5. No Vegetation Disturbance or Managed buffer requirement that is ≥ 75 feet?
- 6. Septic Setback requirement that is ≥ 100 feet?
- 7. Building Setback requirement that is ≥ 100 feet?
- 8. Fertilizer Application Setback requirement that is ≥ 100 feet?



Climate Change

- 1. Has the municipality completed some form of climate change vulnerability assessment?
- 2. Has the municipality completed some form of climate change adaptation planning effort?
- 3. Has the municipality adopted regulatory changes intended to reduce the municipality's vulnerability to potential climate change impacts?



To explore specific data,
please visit www.PREPestuaries.org/PREPA

Actions by Community

The 2015 PREPA provides a comprehensive review of the current state of municipal regulations in the 52 communities in the Piscataqua Region watershed. Although most communities haven taken some steps to protect their natural resources, more work is needed by **every community** in the Exeter-Squamscott watershed.

Community Summary For each of the communities in the Exeter-Squamscott River Subwatershed, buffers should be the first priority. Many communities have adopted buffers, but should take steps toward increasing buffer width requirements and establish setbacks for both septic and primary structures.

Resources for implementing these actions can be found on the website www.PREpestuaries.org or contacting PREP at prep.assistance@unh.edu

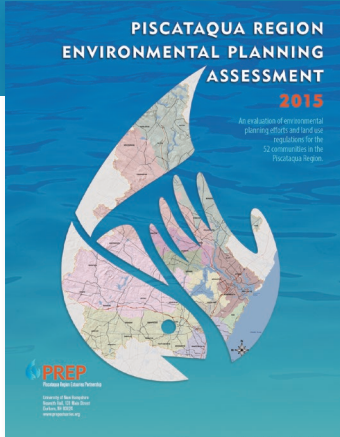
BRENTWOOD			
1 Increase buffers on 1st-4th order streams to 100'	2 Increase fertilizer application to 100' on 1st-4th order streams	3 Increase building and septic setbacks to 100'	4 Complete a climate vulnerability assessment
CHESTER			
1 Increase setback septic and primary structures to 100'	2 Increase no vegetation disturbance buffer to 100'	3 Complete a climate vulnerability assessment	4 Work with landowners to conserve land
DANVILLE			
1 Increase buffers on 1st-4th order streams to 100'	2 Increase setback for septic and primary structures to 100'	3 Adopt 100' fertilizer application setbacks for wetlands	4 Work with landowners to conserve land
EAST KINGSTON			
1 Adopt 100' buffers on all waterbodies, including wetlands	2 Adopt setbacks for primary structures to 100' for streams	3 Increase wetland setbacks for septic and structures to 100'	4 Adopt mandatory conservation subdivision regulations
EXETER			
1 Adopt fertilizer application buffers for all surface waters	2 Increase no vegetation disturbance buffer to 100' on tidal wetlands	3 Increase wetland setbacks for septic to 100'	4 Adopt model stormwater management regulations

RECOMMENDED ACTIONS

The actions table is not meant to be exhaustive but does reflect a menu of prioritized recommendations for communities. Actions are directly related to the questions found on the PREPA assessment forms and reflects both regulatory and non-regulatory actions.

- 1 Top Priority Action
- 2 Second Priority Action
- 3 Third Priority Action
- 4 Fourth Priority Action

FREMONT			
1 Adopt 100' fertilizer application buffers for all waterbodies	2 Adopt model stormwater regulations	3 Adopt mandatory conservation subdivision regulations	4 Work with landowners to conserve land
KENSINGTON			
1 Increase buffers on 1st-4th order streams to 100'	2 Increase septic and structure setback to 100' on 1st-4th order streams	3 Adopt fertilizer application setbacks for all water bodies	4 Adopt model stormwater management regulations
KINGSTON			
1 Increase buffers on 1st-4th order streams to 100'	2 Adopt 100' fertilizer application setbacks for all water bodies	3 Complete a Natural Resources Inventory	4 Complete a climate vulnerability assessment
NEWFIELDS			
1 Increase buffers to 100' for all waterbodies	2 Adopt 100' fertilizer application buffers for all water bodies	3 Increase septic and structure wetland setback to 100'	4 Adopt mandatory conservation subdivision regulations
SANDOWN			
1 Adopt buffers on all waterbodies, including wetlands	2 Increase septic and structure setbacks to 100' on all waterbodies	3 Adopt fertilizer application setbacks for wetlands	4 Adopt model stormwater management regulations
STRATHAM			
1 Increase buffers to 100' for tidal wetlands	2 Increase septic and structure setbacks to 100' for freshwater wetlands	3 Adopt fertilizer application setbacks for all water bodies	4 Adopt model stormwater management regulations



The full PREPA report features deeper explorations of the data region-wide and gives greater context to the issues.

TAKE ACTION

Resources for implementing these actions can be found on the website

www.PREPestuaries.org

or contacting PREP at

prep.assistance@unh.edu



PREP

Piscataqua Region Estuaries Partnership

University of New Hampshire
Nesmith Hall, 131 Main Street
Durham, NH 03824